

DAY	TIME	Grand Ballroom (13F)	Rose Room 1
Oct. 29 Monday	8:00 – 9:30	Registration	
	8:50 – 9:00	Welcome from Conference Chair Chair: Professor Jeffrey J. P. Tsai President, Asia University Grand Ballroom	
	9:00 – 9:50	<b>Keynote (1)</b> <b>Professor Scott L. Delp</b> <b>Stanford University, USA</b> Chair: Professor Jean-Claude Latombe Stanford University, USA Grand Ballroom	
	9:50-10:40	<b>Keynote (2)</b> <b>Professor Yusuke Nakamura</b> <b>University of Chicago, USA</b> Chair: Professor Hideo Matsuda (Osaka University, Japan) <b>Grand Ballroom</b>	
	10:40-10:55	Coffee Break	
	10:55-12:15	S1.1 Biological sequence analysis Chair: Professor TBD Grand Ballroom	S1.2 Biomedical concepts and measurements Chair: TBD Rose Room 1
	12:15-13:15	Lunch [The Plum Blossom Room (13F) NVIDIA, Taiwan]	
	13:15-14:35	S1.3 Sequence alignment and high-performance sequence analysis Chair: TBD Grand Ballroom	S1.4 Recent advancements in medical engineering Chair: TBD Rose Room 1
	14:35-15:55	S1.5 Biological network inference and analysis I Chair: TBD Grand Ballroom	S1.6 Medical and physiological signal analysis I Chair: TBD Rose Room 1
	15:55-16:10	Coffee Break	
	16:10-17:30	S1.7 Workshop: Cancer bioinformatics and intelligent medicine Chair: Professor Tatsuya Akutsu (Kyoto University, Japan) Grand Ballroom	S1.8 Biological sensor and data analysis Chair: TBD Rose Room 1
	17:30-18:30	Break	
	18:30 – 21:00	Reception Chair: Professor Jeffrey J. P. Tsai President, Asia University Grand Ballroom	

Oct. 30 Tuesday	8:00 – 9:30	Registration	
	9:00 – 9:50	<b>Keynote (3)</b> <b>Professor Pui-Yan Kwok</b> Academia Sinica, Taiwan Chair: <b>TBD</b> <b>Grand Ballroom</b>	
	9:50-10:40	<b>Keynote (4)</b> <b>Professor Lydia E. Kavraki</b> Rice University, USA Chair: Professor Tatsuya Akutsu (Kyoto University, Japan) <b>Grand Ballroom</b>	
	10:40-10:55	Coffee Break	
	10:55-11:55	S2.1 <b>Cancer bioinformatics</b> Chair: Professor Y-h Taguchi (Chou University, Japan) Grand Ballroom	S2.2 <b>Medical image and signal analysis I</b> Chair: <b>TBD</b> Rose Room 1
	11:55-13:00	Lunch [The Plum Blossom Room (13F)]	
	13:00-13:50	<b>Keynote (5)</b> <b>Professor Antonios G. Mikos</b> Rice University, USA Chair: <b>TBD</b> <b>Grand Ballroom</b>	
	13:50-15:50	<b>S2.3 Tutorial:</b> <b>Professor Nikolaos G Bourbakis</b> Grand Ballroom	S2.4 <b>Medical signal, sequence detection, DNA barcode</b> Chair: <b>TBD</b> Rose Room 1
	15:50-16:05	Coffee Break	
	16:05-17:25	S2.5 <b>Cancer and medical bioinformatics</b> Chair: Professor Hsueh-Ting Chu (Asia University, Taiwan) Grand Ballroom	S2.6 <b>Medical image and signal analysis II</b> Chair: <b>TBD</b> Rose Room 1
	17:25 – 18:30	Break	
	18:30 – 21:00	Banquet <b>Keynote (6)</b> Professor Jan-Gowth Chang (China Medical University, Taiwan) Chair: Professor Jeffrey J. P. Tsai President, Asia University, Taiwan Grand Ballroom	
Oct. 31 Wednesday	8:00 – 9:00	Registration	
	9:00 – 9:50	<b>Keynote (7)</b> <b>Professor Wen-Hsiung Li</b> Academia Sinica, Taiwan Chair: Professor Chi-Ren Shyu University of Missouri, USA	

		<b>Grand Ballroom</b>	
9:50-10:50	S3.1 Special paper session - Biomedical Big Data Chair: Professor Jan-Gowth Chang (China Medical University, Taiwan) Grand Ballroom	S3.2 Biological text mining and biomedical informatics Chair: <b>TBD</b> Rose Room 1	
10:50-11:05	Coffee Break		
11:05-12:05	S3.3: Biological network inference and analysis II Chair: Professor Wen-Ling Chan (Asia University, Taiwan) Grand Ballroom	S3.4 Computational Modeling and sensor in biomedical engineering Chair: <b>TBD</b> Rose Room 1	
12:05 – 13:00	Lunch [The Plum Blossom Room (13F)] (Close)		

### **S1.1: Biological sequence analysis**

DegSampler: Collapsed Gibbs sampler for detecting E3 binding sites\*

Osamu Maruyama and Fumiko Matsuzaki

Constructing the Relationship Tree of All Viruses via Whole Genomic Sequences

Jing-Doo Wang and Yi-Chun Wang

Stratification of Human Gut Microbiome and Building a SVM-Based Classifier

His-Chung Kung, Jeffrey J. P. Tsai, Rong-Ming Chen and Rouh-Mei Hu

Protein Secondary Structural Class Prediction Using Effective Feature Modeling and Machine Learning Techniques

Sanjay Bankapur and Nagamma Patil

### **S1.2: Biomedical concepts and measurements**

Model Predictive and Proportional Integral Control of Blood Clotting Speed Using Warfarin When Data Are Missing\*

Emma D. Wilson, Quentin Clairon, Robin Henderson and C. James Taylor

Stochastic Non-minimal State Space Control with Application to Automated Drug Delivery\*

Emma D. Wilson, Quentin Clairon and C. James Taylor

Adjacent Network for Semantic Segmentation of Liver CT Scans\*

Indriani Puspitasari Astono, James S. Welsh and Stephan Chalup

### **S1.3: Sequence alignment and high-performance sequence analysis**

Detection of Errors in Multi-Genome Alignments Using Machine Learning Approaches\*

Jaspal Singh, Ramchalam Kinattinkara Ramakrishnan and Mathieu Blanchette

A High-Performance Sequence Analysis Engine for Shotgun Metagenomics through GPU

Acceleration\*

Ying-Feng Hsu, Morito Matsuoka, Nicolas Jung, Yuki Matsumoto, Daisuke Motooka and Shota Nakamura

RLALIGN: A Reinforcement Learning Approach for Multiple Sequence Alignment

Ramchalam Kinattinkara Ramakrishnan, Jaspal Singh and Mathieu Blanchette

An Efficient GPU-based de Bruijn Graph Construction Algorithm for Micro-Assembly

Shanshan Ren, Nauman Ahmed, Koen Bertels and Zaid Al-Ars

### **S1.4: Recent advancement in medical engineering**

Low Cost Micro-Droplet Formation Chip with a Hand-Operated Suction Syringe\*

Gamal Abdel Nasser, Ahmed M.R. Fath El-Bab, Hisham Mohamed and Ahmed Abouelsoud

Design of a Portable Radial Piston Pneumatic Compressor for Wearable Robot System

Ryeonho Kang, Ho Seon Choi and Yoon Su Baek

Study on the Channel Characteristics of Auxiliary Medical Devices Based on MDPSK Technology

Xueping Li, Yuan Yang and Ningmei Yu

SAR ADC with DAC and SC Low-Pass Filter for Positron Emission Tomography Application

Wen Cheng Lai

### **S1.5: Biological network inference and analysis I**

Inference of Genetic Networks Using Random Forests: Use of Different Weights for Time-series and Static Gene Expression Data\*

Shuhei Kimura, Masato Tokuhisa and Mariko Okada-Hatakeyama

An Intensive Search for Higher-order Gene-gene Interactions by Improving Deep Learning Model\*

Suneetha Uppu and Aneesh Krishna

Interpretable Prediction of Vascular Diseases from Electronic Health Records via Deep Attention Networks\*

Seunghyun Park, You Jin Kim, Jeong Whun Kim, Jin Joo Park, Borim Ryu and Jung-Woo Ha

Pathway Analysis of Marker Genes for Leukemia Cancer Using Enhanced Genetic Algorithm-Neural Network (enGANN)

Hau Cherng Wong, Christine Siew Ken Lee and Dong Ling Tong

### **S1.6: Medical and physiological signal analysis I**

Biomedical Data Acquisition and Processing to Recognize Emotions for Affective Learning\*

Armin Gruenewald, David Kroenert, Jonas Poehler, Rainer Brueck, Frédéric Li, Kathrin Schnieber, Artur Piet, Julian Littau, Marcin Grzegorzec, Henrik Kampling and Bjoern Niehaves

KnowPain: Automated System for Detecting Pain in Neonates from Videos\*

Rajkumar Theagarajan, Bhanu Bir, Danilyn Angeles and Federico Pala

Brain Structural and Functional Representation Based on the Local Global Graph Methodology

Spyridon Manganas, Nikolaos Bourbakis and Konstantinos Michalopoulos

Comparison of Region of Interest Segmentation Methods for Video-based Heart Rate Measurements

Peixi Li, Yannick Benezeth, Keisuke Nakamura, Randy Gomez, Chao Li and Fan Yang

### **S1.7: Workshop: Cancer bioinformatics and intelligent medicine**

Deep Learning with Evolutionary and Genomic Profiles for Identifying Cancer Subtypes

Chun-Yu Lin, Peiyong Ruan, Ruiming Li, Jinn-Moon Yang, Simon See and Tatsuya Akutsu

Convolutional Neural Network Approach to Lung Cancer Classification Integrating Protein

Interaction Network and Gene Expression Profiles

Teppe Matsubara, Tomoshiro Ochiai, Morihiro Hayashida, Tatsuya Akutsu and Jose Nacher

Identification of the PCa28 gene signature as a predictor in prostate cancer

Jung-Yu Lee, Si-Yu Lin, Yi-Hsuan Chuang, Sing-Han Huang, Yu-Yao Tseng, Chun-Yu Lin, Hung-Jung Wang and Jinn-Moon Yang

Detection of Fusion Genes from Human Breast Cancer Cell-line RNA-Seq Data Using Shifted Short Read Clustering

Yoshiaki Sota, Shigeto Seno, Hironori Shigeta, Naoki Osato, Masafumi Shimoda, Shinzaburo Noguchi and Hideo Matsuda

### **S1.8: Biological sensor and data analysis**

Recovering a Chemotopic Feature Space from a Group of Fruit Fly Antenna Chemosensors\*

Martin Strauch, Latha Mukunda, Alja Lüdke, C. Giovanni Galizia and Dorit Merhof

Investigating Electrode Sites for Intention Detection During Robot Based Hand Movement Using EEG-BCI System

Maryam Butt, Golshah Naghdy, Fazel Naghdy, Geoffrey Murray and Haiping Du

Remote Assessment of Gait Deterioration Due to Memory Impairment in Elderly Adults Using Micro-Doppler Radar

Kenshi Saho, Kazuki Uemura and Michito Matsumoto

Estimating GRF (Ground Reaction Force) and Calibrating CoP (Center of Pressure) of an Insole Measured by a Low-Cost Sensor with Neural Network

Ho Seon Choi, Myounghoon Shim, Chang Hee Lee and Yoon Su Baek

### **S2.1: Cancer bioinformatics**

MVPNets: Multi-Viewing Path Deep Learning Neural Networks for Magnification Invariant

Diagnosis in Breast Cancer\*

Padmaja Jonnalagedda, Daniel Schmolze and Bir Bhanu

Tensor Decomposition-based Unsupervised Feature Extraction for Integrated Analysis of TCGA Data on MicroRNA Expression and Promoter Methylation of Genes in Ovarian Cancer\*

Y-H. Taguchi and Ka-Lok Ng

Cancer Screening Using Biomimetic Pattern Recognition with Hyper-Dimensional Structures

Leonila Lagunes and Charles H. Lee

## **S2.2: Medical image and signal analysis I**

Automated Evaluation of Hand Motor Function Recovery by Using Finger Pressure Sensing Device for Home Rehabilitation\*

Yuta Furudate, Nanami Onuki, Kaori Chiba, Yuji Ishida and Sadayoshi Mikami

Nonlinear CMOS Image Sensor with SOC Integrated Local Contrast Stretch for Bio-microfluidic Imaging

Nan Lyu, Likang Xu, Ningmei Yu and Hejiu Zhang

Software Defined Radio-Based Testbed for Wireless Body Area Network

Zhiyu Chen, Junchao Wang, Kaining Han and Zeljko Zilic

## **S2.3 Tutorial: Assistive Research Biotechnologies for People in Need**

Professor Nikolaos G Bourbakis

## **S2.4: Medical signal, sequence detection, DNA barcode**

Decision Theory-Based DNA Barcoding Through Quick Response Code Representation\*

Cheng-Hong Yang, Kuo-Chuan Wu, Hsueh-Wei Chang and Li-Yeh Chuang

Species Identification using Partial DNA Sequence: A Machine Learning Approach

Tasnim Kabir, Abida Sanjana Shemonti and Atif Hasan Rahman

Psycho-physiological Changes Depend on Differences in the Presentation Ratio of Non-target Stimuli

Hiroaki Yoshikawa and Hiroshi Hagiwara

Quantitative Frailty Assessment Using Activity of Daily Living (ADL)

Yasmeen Naz Panhwar, Fazel Naghdy, David Stirling, Golshah Naghdy and Janette Potter

Novel Parameters for ECG Signal Analysis Irrespective of Patient's Age, Sex and Heart Rate

Salah Hamdi, Asma Ben Abdallah and Mohamed Hedi Bedoui

Using NIRS to detect brain oxyHb changes during short-term memory tasks

Takuya Sasabe and Hiroshi Hagiwara

Improved Multifactor Dimensionality Reduction for Epistasis Detection

Li-Yeh Chuang, Cheng-Hong Yang and Yu-Da Lin

## **S2.5: Cancer and medical bioinformatics**

Identification of Several Core Overexpressed MicroRNAs that Could Predict Survival in Patients with Ovarian Cancer\*

Eskezeia Y. Dessie, Ezra B. Wijaya, Chien-Hung Huang, David Agustriawan, Jeffrey J.P Tsai and Ka-Lok Ng

Quantitative Analysis of ECI2 Expression from RNA-seq for Breast Cancer Gene Signatures

Ming-Yi Yen, Hsueh-Ting Chu, Yu-Ching Chen and Jeffrey J. P. Tsai

Identification of Potential Long Non-coding RNA Biomarkers for Breast Cancer Patients with

Somatic BRCA1 Mutations from RNA-Seq Datasets

Jia-Hua Cai, Yu-Ching Chen, Hsueh-Ting Chu and Jeffrey J. P. Tsai

The Potential Dual-target Inhibitors for HER2/HSP90 Proteins from Traditional Chinese Medicine

Jih-Ying Chen, Chia-Min Chen, Pei-Chun Chang and Jeffrey J.P. Tsai

## **S2.6: Medical image and signal analysis II**

Adjacent Network for Semantic Segmentation of Liver CT Scans\*

Indriani Puspitasari Astono, James S. Welsh, Stephan Chalup

Detection of *H. pylori* Induced Gastric Inflammation by Diffuse Reflectance Analysis\*

Alexandre Krebs, Vania Camilo, Eliette Touati, Yannick Benezeth, Valérie Michel, Grégory Jouvion, Fan Yang, Dominique Lamarque and Franck Marzani

Implementation of an Ultrasound Platform for Proposed Photoacoustic Image Reconstruction Algorithm\*

Enkhbat Batbayar, Enkhbaatar Tumenjargal, Chulgyu Song and Woonchul Ham

Three-Dimensional Segmentation of Mouse Embryonic Stem Cell Nuclei for Quantitative Analysis of Differentiation Activity Using Time-lapse Fluorescence Microscopy Images\*

Yuan-Hsiang Chang, Hideo Yokota, Kuniya Abe and Ming-Dar Tsai

### **S3.1: Special paper session - Biomedical Big Data**

Mutation Analysis of Second Primary Tumors in the Head and Neck Cancer by Next Generation Sequencing

Ting-Yuan Liu, Chien-Chin Lee, Hsi-Yuan Huang and Jan-Gowth Chang

The Amiloride Derivatives Regulate the Alternative Splicing of Apoptotic Gene Transcripts

Chien-Chih Lee, Wen-Hsin Chang, Ting-Yuan Liu, Yu-Chia Chen, Guan-Yu Chen, Yang-Chang Wu and Jan-Gowth Chang

The Role of mRNA Transporter in Human Cancer

Yu-Chia Chen, Chien-Chih Chiu, Han-Lin Chou and Jan-Gowth Chang

### **S3.2: Biological text mining and biomedical informatics**

Stochastic Non-minimal State Space Control with Application to Automated Drug Delivery\*

Emma D. Wilson, Quentin Clairon and C. James Taylor

Semantic Relation Extraction for Herb-drug Interactions from the Biomedical Literature Using an Unsupervised Learning Approach

Khang Trinh, Duy Pham and Ly Le

Learning Effective Distributed Representation of Complex Biomedical Concepts

Khai Nguyen and Ryutaro Ichise

### **S3.3: Biological network inference and analysis II**

A Systems Biology Approach to Model Gene-Gene Interaction for Childhood Sarcomas

Dong Ling Tong and Christine Siew Ken Lee

Prediction of Plant-Disease Relations Based on Unani Formulas by Network Analysis

Shaikh Farhad Hossain, Sony Hartono Wijaya, Ming Huang, Irmanida Batubara, Shigehiko Kanaya and Md. Altaf-Ul-Amin

Computational Modeling of the Early Development of Embryonic Leaves in Maize

Charles C.N. Wang, Pei-Chun Chang, Phillip C.Y. Sheu and Jeffrey J.P. Tsai

### **S3.4 Computational Modeling and sensor in biomedical engineering**

Finite Element Modelling for the Detection of Breast Tumor

Olzhas Mukhmetov, Dastan Igali, Yong Zhao, Sai Cheong Fok, Soo Lee Teh and Aigerim Mashekova

Computational Modeling of Traumatic Brain Injury Due to Impact on Different Sides of Human Head

Tanu Khanuja and Harikrishnan N. Unni

Sigma-Delta ADC for Image Sensor in Virtual and Augmented Reality Camera to Medical Training

Wen Cheng Lai

\* regular paper